WHAT IS CLAIMED IS:

1. A robotic platform comprising:

a body;

at least two locomotion members for moving said body; each of said at least two locomotion members being mounted to said body via a steering assembly so as to pivot in a first plane relatively to said body; each of said at least two locomotion members including an endless track assembly having a driving wheel, a drive system for driving said driving wheel, a driven wheel, an endless track for coupling said driven wheel to said driving wheel for rotation in unison, and a track tensioning assembly for pivoting said locomotion member in a second plane perpendicular to said first plane;

at least one controller mounted to said body and being coupled to said at least two locomotion members; said at least one controller being configured to actuate the movement of said at least two locomotion members; and

a power supply system mounted to said body and being coupled to said at least one controller for energizing said at least one controller and said at least two locomotion members.

2. A robotic platform as recited in claim 1, comprising four locomotion members.

3. A robotic platform as recited in claim 1, wherein said drive system includes a mounting assembly, and i) a driving wheel actuator, ii) a driving mechanism for said track-tensioning assembly, and iii) a driving wheel support structure mounted to said mounting assembly.

4. A robotic platform as recited in claim 3, wherein said steering assembly includes a pivoting actuator; said at least one controller

being configured to control said driving wheel actuator, said driving mechanism for said track-tensioning assembly, and said pivoting actuator.

5. A robotic platform as recited in claim 3, wherein said mounting assembly includes first and second mounting plates secured to one another so as to face each other and as to provide a gap therebetween.

6. A robotic platform as recited in claim 5, wherein said driving wheel actuator includes a motor, having an output driving shaft, mounted to said second mounting plate on a side opposite said first mounting plate so that said output driving shaft extends through said second mounting plate towards said first mounting plate, an internally toothed gear coaxially mounted on said second plate between said first and second plates and being provided with inner toothed gear operatively coupled to the output driving shaft of said motor via a pulley assembly;
whereby, in operation, rotation of the driving shaft causes the rotation of the internally toothed gear.

7. A robotic platform as recited in claim 6, wherein said motor is of the servo-disc type.

8. A robotic platform as recited in claim 3, wherein said driving wheel support structure includes at least three ball bearings for receiving said driving wheel; each said at least three ball bearings being mounted to said first mounting plate near the circumference thereof via rods; said second mounting plates having a width providing with a notch; said driving wheel support structure further including a large diameter bearing mounted between said driving wheel and said second mounting plate so as to abut said notch.

9. A robotic platform as recited in claim 3, wherein said driving mechanism for said track-tensioning assembly includes an inner toothed gear mounted to said track-tensioning assembly, a motor, having a driving shaft and being mounted to said first mounting plate, for driving said inner toothed gear, and a speed-reduction gear set for transmitting the rotational movement of said motor to said inner-toothed gear.

10. A robotic platform as recited in claim 9, wherein said speed-reduction gear set is configured for self-locking said track-tensioning assembly when said motor is stopped.

11. A robotic platform as recited in claim 1, wherein said track-tensioning assembly includes a support frame mounted within said endless track to both said driving wheel and said driven wheel therebetween; said driving wheel being received in a ring portion of said support frame.

12. A robotic platform as recited in claim 11, wherein said tensioning assembly includes a tensioning sub-assembly for adjusting the tension of said endless track.

13. A robotic platform as recited in claim 12, wherein said tensioning sub-assembly includes a driven wheel mounting bracket; said driven wheel being rotatably mounted to said bracket; said driven wheel mounting bracket being mounted to said frame support so as to be selectively movable within said endless track in a direction away from said driving wheel and generally defined by said endless track.

14. A robotic platform as recited in claim 13, wherein said driven wheel mounting bracket being selectively movable via at least one threaded rod and an adjustment rod mounted to both said driven wheel

mounting bracket and said support frame therebetween; said adjustment rod including i) a keyway engaged in a corresponding key mounted to said mounting bracket and ii) a threaded portion at its longitudinal end opposite said keyway; said threaded portion of said adjustment rod including an adjustment bolt abutting a plate secured to said support frame;
whereby, in operation, rotation of said adjustment bolt allows moving said driven wheel mounting bracket away or towards said driving wheel.

15. A robotic platform as recited in claim 11, wherein said tensioning assembly includes two skid plates mounted transversally to said support frame on opposite lateral sided thereof for supporting said endless track.

16. A robotic platform as recited in claim 1, wherein said driving wheel is larger than said driven wheel.

17. A robotic platform as recited in claim 1, wherein said driven wheel is larger than said driving wheel.

18. A robotic platform as recited in claim 1, wherein said driving wheel includes a protective disk mounted on a peripheral surface thereof; said protective disk extending radially from said driving wheel.

19. A robotic platform as recited in claim 18, wherein said protective disk is covered by a coating.

20. A robotic platform as recited in claim 1, wherein each of said at least two locomotion members includes a locomotion controller for actuating said drive system of said each of said at least two locomotion member.

21. A robotic platform as recited in claim 1, wherein each of said at least two locomotion members includes at least one position sensor for measuring displacements of said at least two locomotion members.

22. A robotic platform as recited in claim 1, further comprising an environment recognition module including at least one of a proximity sensor and a long-range sensor mounted to said locomotion member and coupled to said controller; readings from said at least one of a proximity sensor and a long-range sensor being usable by said controller to control said at least two locomotion members.

23. A robotic platform as recited in claim 1, further comprising an environment recognition module including at least one of an ultra-sound sensor and an infrared sensor.

24. A robotic platform as recited in claim 1, further comprising at least one environment recognition module, each mounted on one of said at least two locomotion members.

25. A robotic platform as recited in claim 1, wherein said body includes a chassis.

26. A robotic platform as recited in claim 25, wherein said steering assembly is mounted to said chassis.

27. A robotic platform as recited in claim 26, wherein said steering assembly includes work reducing means providing a lever effect between said chassis and said locomotion member.

28. A robotic platform as recited in claim 26, wherein said steering controller includes pivot-controlling means.

29. A robotic platform as recited in claim 26, wherein said steering assembly includes a motor secured to said chassis via a motor bracket.

30. A robotic platform as recited in claim 29, wherein said steering assembly further includes a worm-gear having an input operatively coupled to said motor and an output operatively coupled to a drive shaft rotatably mounted to said chassis, a gear box having a first gear fixedly mounted to said drive shaft and cooperatively coupled to a second gear, and a locomotion member mounting bracket for receiving one of said at least two locomotion members and being fixedly mounted to a rotatable shaft mounted to said second gear.

31. A robotic platform as recited in claim 30, wherein at least one of said motor, said worm-gear, and said gear box being configured so as to yield a reduction of speed between said motor and said locomotive assembly mounting bracket.

32. A robotic platform as recited in claim 25, wherein said body includes columns mounted on said chassis.

33. A robotic platform as recited in claim 32, wherein said body further includes a mounting plate mounted on top of said chassis via said columns; said mounting plate allowing receiving equipments to be carried by the robotic platform.

34. A robotic platform as recited in claim 32, further comprising handles secured to said columns.

35. A robotic platform as recited in claim 25, further comprising at least one interface panel secured to said chassis and connected to said at least one controller.

36. A robotic platform as recited in claim 25, further comprising a shell mounted unto said chassis.

37. A robotic platform as recited in claim 36, wherein said shell includes shell portions; each said shell portions being removably secured to said chassis so as to selectively allow access to internal parts of said body.

38. A track-tensioning assembly for pivoting an endless track assembly including a driving wheel about the driving wheel; said endless track assembly including, in addition to the driving wheel, a drive system for driving the driving wheel, a driven wheel, and an endless track for coupling the driven wheel to the driving wheel for rotation in unison; the track-tensioning assembly comprising:

a support frame having a ring portion and being mounted within the endless track between said driving wheel and said driven wheel; said driving wheel being rotatably received in said a ring portion of said support frame;

a driving mechanism for pivoting said support frame about said driving wheel, including an inner toothed gear secured to said support frame, a motor, having a driving shaft, mounted to the driving wheel via a mounting plate for driving said inner toothed gear, and a speed-reduction gear set for transmitting the rotational movement of said driving shaft of said motor to said inner-toothed gear.

39. A track-tensioning assembly as recited in claim 38, wherein said speed-reduction gear set is configured for self-locking said track-tensioning assembly when said motor is stopped.

40. A track-tensioning assembly as recited in claim 38, wherein said tensioning assembly includes a tensioning sub-assembly for adjusting the tension of said endless track.

41. A track-tensioning assembly as recited in claim 40, wherein said tensioning sub-assembly includes a driven wheel mounting bracket; said driven wheel being rotatably mounted to said bracket; said driven wheel mounting bracket being mounted to said frame support so as to be selectively movable within the endless track in a direction away from the driving wheel and generally defined by the endless track.

42. A robotic platform comprising:

a body;

a locomotion assembly mounted to said body for moving said body; said locomotion assembly including at least one locomotion member for displacement of said body and a steering assembly including a steering mechanism for steering said body; said at least one locomotion member including a drive assembly and a locomotion controller coupled to said drive assembly; said steering assembly including a steering controller coupled to said steering mechanism;

an environment recognition module mounted to the platform for gathering environment data indicative of the environment surrounding the robotic platform; said environment recognition module including a sensor and a recognition module controller coupled to said sensor;

an energizing module including a power supply controller and an energizing system connected to said locomotion assembly and said environment recognition module for energizing said locomotion assembly and said environment recognition module; and

a communication data bus interconnecting said at least one locomotion controller, said steering controller and said environment recognition module controller for communicating status data therebetween;

whereby, in operation, said locomotion controller, steering controller, recognition module controller, and power supply controller exchanging status data about said drive assembly, said steering assembly, said environment recognition module, and said energizing system via said communication data bus, and using said status data to control said drive assembly, said steering assembly, said environment recognition module, and said energizing system respectively.

43. A robotic platform as recited in claim 42, wherein said steering controller is coupled to said steering mechanism via a sensor mounted to said steering mechanism; said sensor being coupled to said steering controller.

44. A robotic platform as recited in claim 42, wherein said locomotion controller is coupled to said drive assembly via a sensor mounted to said drive assembly; said sensor being coupled to said locomotion controller.

45. A robotic platform as recited in claim 42, further comprising a central control system, coupled to said locomotion controller, said steering controller and said recognition module controller, for receiving status data about said drive assembly, said steering assembly, said environment recognition module, and said energizing system via said communication data bus, and using said status data for coordinating and selectively controlling said

drive assembly, said steering assembly, said environment recognition module, and said energizing system so as to achieve at least one predetermined operational mode.

46. A robotic platform as recited in claim 45, wherein selectively controlling said drive assembly, said steering assembly, said environment recognition module, and said energizing system includes sending query messages to said environment recognition module via said communication data bus, and receiving distance evaluation from said environment recognition module.

47. A robotic platform as recited in claim 45, wherein selectively controlling said drive assembly, said steering assembly, said environment recognition module, and said energizing system includes sending query messages to said at least one locomotion controller via said communication data bus, receiving data from said locomotion member indicative of said locomotion member configuration, and sending command messages to control said at least one locomotion member according to said data indicative of said locomotion member configuration.

48. A robotic platform as recited in claim 45, wherein said at least one locomotion member includes at least two locomotion members each coupled to a locomotion controller and to a steering controller yielding at least two locomotion controllers and at least two steering controllers; said robotic platform further comprising a synchronisation data bus interconnecting the at least two locomotion controllers and the at least two steering controllers of said at least two locomotion members to said central controller; said central controller being configured for receiving status data from said at least two locomotion controllers and said at least two steering controllers of said at least two locomotion members and for controlling said at least two locomotion

controllers and said at least two steering controllers of said at least two locomotion members.

49. A robotic platform as recited in claim 42, wherein said environment recognition module includes at least one of a proximity sensor and a long-range sensor.

50. A robotic platform as recited in claim 42, wherein said environment recognition module includes at least one of an ultra-sound sensor, an infrared sensor and a contact switch.

51. A robotic platform as recited in claim 50, wherein said contact switch is mounted to said body.

52. A robotic platform as recited in claim 42, wherein said environment recognition module includes at least one sensor mounted to said at least one locomotion member.

53. A robotic platform as recited in claim 42, wherein said at least one locomotion member includes at least one position sensor for measuring displacements of said at least one locomotion member.

54. A robotic platform as recited in claim 53, wherein said at least one position sensor includes a position encoder or a limit switch.

55. A robotic platform as recited in claim 42, wherein said body includes a chassis.

56. A robotic platform as recited in claim 55, wherein said steering assembly is mounted to said chassis.

57. A robotic platform as recited in claim 56, wherein said steering assembly includes a motor secured to said chassis via a bracket.

58. A robotic platform as recited in claim 42, wherein steering controller includes pivot controlling means.

59. A robotic platform as recited in claim 42, wherein said at least one locomotion member includes a plurality of locomotion members; said communication data bus including a synchronisation data bus for communicating information related to the synchronisation of said plurality of locomotion members.

60. A robotic platform as recited in claim 42, wherein said communication data bus allows for the exchange of queries and data between said at least one locomotion controller, said steering controller, and said recognition module controller.

61. A robotic platform as recited in claim 42, wherein said at least one locomotion controller, said steering controller and said recognition module controller communicate via said communication data bus using the Control Area Network (CAN) protocol.

62. A robotic platform as recited in claim 61, wherein the version 2.0B of said CAN protocol is used.

63. A robotic platform as recited in claim 61, wherein said at least one locomotion controller, said steering controller and said recognition module controller communicate via said communication data bus using CAN data frame including an arbitration field characterized by at least one of a

priority, a message type, a command or query, and a hardware address indicative of a module identity.

64. A robotic platform as recited in claim 63, wherein said message type is used for a receiving module filtering frames and includes at least one of emergency query, high-priority actuator, high-priority sensor low-priority actuator, and low-priority sensor.

65. A robotic platform as recited in claim 42, wherein said locomotion controller and said steering controller are the same.

66. A robotic platform as recited in claim 42, wherein said energizing system includes at least one power source selected form the group consisting of a battery, a battery pack, a fuel cell.

67. A robotic platform as recited in claim 42, further comprising a pitch gauge system mounted to said body for measuring the pitch of said body and including a pitch measuring device and a pitch device micro-controller connected to said communication data bus and coupled to said pitch device.

68. A robotic platform as recited in claim 67, wherein said pitch measuring device is a pitch gauge or an inertial system.

69. A robotic platform as recited in claim 42, further comprising a user-interface to be coupled to the robotic platform via the communication data bus for accessing data information related to said locomotion controller, steering controller, recognition module controller, and said power supply controller.

70. A robotic platform as recited in claim 42, further comprising a computer system configured to communicate with said locomotion controller, said steering controller, said recognition module controller, and said power supply controller via the communication data bus and to control said locomotion controller, steering controller, recognition module controller, and said power supply controller.

71. A method for controlling the modules of a robotic platform, each module including a system and a controller for the system, and each system including at least one sensor and one actuator, the method comprising:

coupling the modules through a communication data bus;

providing a central controller coupled to the modules via the communication data bus;

upon one of the modules sending a first data frame over said communication data bus, each said first data frame being characterized by the hardware address of the module to which the data frame is intended;

i) each of the modules filtering said first data frame to identify data frames intended thereto using said hardware address of the module to which said first data frame is intended;

ii) said central controller verifying whether the module to which said first data frame is intended to is activated or not;

iii) if said module to which said first data frame is intended to is activated then said module to which the data frame is intended to a) reading its at least one sensor, b) processing said command or query according to said reading, c) commanding its at least one actuator according to said processing, and d) transmitting a second data

frame via said communication bus to the modules indicative of the command/query; and

iv) transmitting a second data frame indicative of the status of at least said module to which said first data frame is intended to.